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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,682	03/23/2007	Reuven Bakalash	142-002USAC00	9620

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EXAMINER	
NGUYEN, HAU H	

ART UNIT	PAPER NUMBER
2628	

MAIL DATE	DELIVERY MODE
02/04/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/579,682	BAKALASH ET AL.	
	Examiner	Art Unit	
	HAU H. NGUYEN	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/25/2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *39-55* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *39-55* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/14/08, 12/11/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 39-55 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15 of copending U.S. Patent Application No. 11/977,177. Although the conflicting claims are not identical, they are not patentably distinct from each other because all the features of claims 39-55 of the instant application are contained in claims 1-15 of U.S. Patent App. No. 11/977,177.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Please see below.

Table I

Current Application 10/569,682	US Patent Application No. 11/977,177
39-55	1-15

For instance, claim 10 of current application, and claim 1 of application 11/977,177 is compared below:

Current Application 10/578,682:

Claim 39 (new): A PC-based computing system comprising:
system memory for storing software graphics applications, software drivers and graphics libraries, and;
an operating system (OS), stored in said system memory;
one or more graphics applications, stored in said system memory, for generating a stream of geometrical data and graphics commands supporting
(i) the representation of one or more 3D objects in a scene having 3D geometrical characteristics and
(ii) the viewing of images of said one or more 3D objects in said scene during an interactive process carried out between said PC- based computing system and a user of said PC-based computing system;
one or more graphic libraries, stored in said system memory, for storing data used to implement said stream of geometrical data and graphics commands;
a central processing unit (CPU), for executing said OS, said graphics applications, said drivers and said graphics libraries;
an CPU interface module for interfacing with said CPU;
a PC bus;
a graphics processing subsystem interfaced with said CPU interface module by way of said PC bus; and
a display surface for displaying said images by graphically displaying frames of pixel data produced by said graphics processing subsystem;
wherein said graphics processing subsystem includes:
a plurality of graphic processing units (GPUs) arranged in a parallel architecture and operating according to said parallelization mode of operation so that said GPUs support multiple graphics pipelines and process data in a parallel manner,
one or more GPU drivers, stored in said system memory, for allowing said GPUs to interact with said graphic libraries;
one or more software hub drivers, stored in said system memory, a hardware hub, interfacing

with said CPU interface module and said GPUs, by way of said PC bus, and having a hub router for

(i) distributing the stream of geometrical data and graphic commands among said GPUs, and

(ii) transferring pixel data output from one or more of said GPUs during the composition of frames of pixel data corresponding to final images for display on said display surface;
wherein said CPU interface module provides an interface between said one or more software hub drivers and said hardware hub;
wherein said one or more Software hub drivers perform the following functions:

(i) controlling the operation of said hardware hub,

(ii) interacting with said OS and said graphic libraries, and

(iii) forwarding said stream of geometrical data and graphic commands, or a portion thereof, to each said GPU over said PC bus; and

wherein, for each image of said 3D object to be generated and displayed on said display surface, the following operations are performed:

(i) said hardware hub uses said hub router and said PC bus to distribute said stream of geometrical data and graphic commands, or a portion thereof, to said GPUs,

(ii) one or more of said GPUs process said stream of geometrical data and graphic commands, or a portion thereof, during the generation of each said frame, while operating in said parallelization mode, so as to generate pixel data corresponding to at least a portion of said image, and

(iii) said hardware hub uses said router and said PC bus to transfer said pixel data output from one or more of said GPUs and compose a frame of pixel data, representative of the image of said 3D object, for display on said display surface.

U.S. Patent Application No. 11/977,177:

Claim 1. A PC-based computing system comprising:
a system memory for storing software graphics applications, software drivers and graphics libraries, and;

an operating system (OS), stored in said system memory;

one or more graphics applications, stored in said system memory, for generating a stream of geometrical data and graphics commands supporting (i) the representation of one or more 3D objects in a scene having 3D geometrical characteristics and (ii) the viewing of images of said one or more 3D objects in said scene during an interactive process carried out between said PC-based computing system and a user of said PC-based computing system;

one or more graphic libraries, stored in said system memory, for storing data used to implement said stream of geometrical data and graphics commands;

a central processing unit (CPU), for executing said OS, said graphics applications, said drivers and said graphics libraries;

an CPU interface module for interfacing with said CPU;
a PC bus;

a graphics processing subsystem interfaced with said CPU interface module by way of said PC bus; and

a display surface for displaying said images by graphically displaying frames of pixel data produced by said graphics processing subsystem;

wherein said *parallel* graphics processing subsystem includes:

a plurality of graphic processing units (GPUs) arranged in a parallel architecture and operating according to *an object division mode* of parallel operation so that said GPUs support multiple graphics pipelines and process data in a parallel manner;

one or more GPU drivers, stored in said system memory, for allowing said GPUs to interact with said graphic libraries;

one or more software hub drivers, stored in said system memory;

a hardware hub, interfacing with said CPU interface module and said GPUs by way of said PC bus, and including a hub router for
(i) distributing the stream of geometrical data and graphic commands among said GPUs *according to said objective division mode*, and (ii) transferring pixel data output from one or more of said GPUs during the composition of frames of pixel data corresponding to final images for display on said display surface;

wherein said CPU interface module provides an interface between said one or more software hub drivers and said hardware hub;

wherein said one or more software hub drivers perform the following functions:
(i) controlling the operation of said hardware hub,
(ii) interacting with said OS and said graphic libraries,
(iii) analyzing said stream of geometrical data and said graphics commands, and
(iv) forwarding said stream of geometrical data and graphic commands, or a portion thereof, to each said GPU over said PC bus; and

wherein, for each image of said 3D object to be generated and displayed on said display surface, the following operations are performed:

(i) said hardware hub uses said hub router and said PC bus to distribute said stream of geometrical data and graphic commands, or a portion thereof, to said GPUs,

(ii) said GPUs process said stream of geometrical data and graphic commands, or a portion thereof, during the generation of each said frame, while operating in said *object division mode*, so as to generate pixel data corresponding to at least a portion of said image, and

(iii) said hardware hub uses said hub router and said PC bus to transfer said pixel data output from one or more of said GPUs and compose a frame of pixel data, representative of the image of said 3D object, for display on said display surface.

As can be seen above, the above italicized words are the only difference between the two applications. If it was not that the current application is missing antecedent basis on the limitation "said parallelization mode" (underlined above in claim 39), the two inventions are almost identical.

3. Claims 39-55 are also provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of copending U.S. Patent Application No. 11/977,161 for the same reason. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

4. Applicant is reminded of filing terminal disclaimer for all the related cases having similar scope to the current application to expedite the prosecution.

Information Disclosure Statement

5. The information disclosure statement (IDS) submitted on 1/14/2008 and 12/11/2009 has been considered by the examiner.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hau H. Nguyen whose telephone number is: 571-272-7787. The examiner can normally be reached on MON-FRI from 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794.

The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Hau H Nguyen/

Primary Examiner, Art Unit 2628